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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/643,160

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EXAMINER

DRODGE, JOSEPH W

ART UNIT

PAPER NUMBER

1723

DATE MAILED: 08/08/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/643,160

Applicant(s)

RUDKEVICH, DMITRY M.

Examiner

Joseph W. Drodge

Art Unit

1723

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 07 June 2006.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-20 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-20 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____

The Affidavit filed on June 7, 2006 under 37 CFR 1.131 is sufficient to overcome the previously applied Zyzranov publication/reference.

Claims 19 and 20 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention. The amendment to claim 19 and 20 claim language concerning the complex being "by noncovalent forces" is not supported by the instant Specification as filed and constitutes "NEW MATTER". The specification rather states that the forming of the complex is not fully understood.

When the reference teaches a product that appears to be the same as, or an obvious variant of, the product set forth in a product-by-process claim although produced by a different process. See *In re Marosi*, 710 F.2d 799, 218 USPQ 289 (Fed. Cir. 1983) and *In re Thorpe*, 777 F.2d 695, 227 USPQ 964 (Fed. Cir. 1985). See also MPEP § 2113.

When the examiner has found a substantially similar product as in the applied prior art, the burden of proof is shifted to applicant to establish that their product is patentably distinct and not the examiner to show the same process as making. *In re Brown*, 173 USPQ 685 and *In re Fessmann*, 180 USPQ 324.

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

Claims 1-18 are rejected under 35 U.S.C. 103(a) as being unpatentable over Lamartine et al patent 6,136,071 in view of Berg patent 2,544,214.

Lamartine et al, of record, discloses devices employing calix[4]arene compounds (column 5, about line 40), that may be used to purify fluid streams containing nitrogen-containing substances (column 2, lines 32-37), and by a capturing, complexation mechanism (column 5, lines 19-20). The devices absorb or adsorb and form complexes with captured contaminants (column 5, lines 19-21). The contaminants complexed are said to include ammonia, hydrogen sulfide and other nitrogen-containing compounds, especially light-weight nitrogen, gaseous compounds, generally (see column 2, lines 32-37 and lines 51-61) where it is also stated that the explicitly disclosed lists of gaseous contaminants complexed and sorbed "is not exhaustive".

The claims differ in requiring complexing of specifically nitric oxide. Berg teaches that gaseous contaminants comprising oxides of nitrogen, hydrogen sulfide, ammonia, and the like occur together and have similar properties of adsorbability (column 6, lines 17-36). It would have been obvious to one of ordinary skill in the art to have utilized the Lamartine device to adsorb nitrous oxides including nitric oxide, as suggested by Berg, since oxides of nitrogen occur together with the other low-molecular weight gaseous contaminants listed by Lamartine and have similar adsorbability characteristics.

Regarding various dependent claims, Lamartine also discloses the calixarene being coupled to a substrate or solid support (Abstract) [as in claims 6,9,12 and 18], and its forming a storage device (column 4, lines 46-47 concerns its capturing nitrogen-containing compounds [as in claims 8,13 and 17].

The limitations of dependent claims pertaining to association with a particular nitrogen-containing compound (NO^+), detection of color changes, complexing being stabilized with Lewis Acids, periods of being chemically stable, and deriving of NO^+ from an oxide of nitrogen in a form other than nitric oxide have each been given little patentable weight, since no nexus is seen between particular processes that result in the presence of NO^+ contaminants in fluids and properties of the calixarene compounds utilized to sense, contain or purify NO^+ from fluid mixtures containing same.

With regard to each of independent claims 1, 11, 15 and 16, the limitation “wherein NO⁺ is derived from an oxide of nitrogen in a form other than nitric oxide” is considered a product-by-process limitation, and now deemed to be of limited patentable weight, since no nexus is seen between particular processes that result in the presence of NO⁺ contaminants in fluids and properties of the calixerene compounds utilized to sense, contain or purify NO⁺ from fluid mixtures containing same.

When the reference teaches a product that appears to be the same as, or an obvious variant of, the product set forth in a product-by-process claim although produced by a different process. See *In re Marosi*, 710 F.2d 799, 218 USPQ 289 (Fed. Cir. 1983) and *In re Thorpe*, 777 F.2d 695, 227 USPQ 964 (Fed. Cir. 1985). See also MPEP § 2113.

When the examiner has found a substantially similar product as in the applied prior art, the burden of proof is shifted to applicant to establish that their product is patentably distinct and not the examiner to show the same process as making. *In re Brown*, 173 USPQ 685 and *In re Fessmann*, 180 USPQ 324.

Claims 19 and 20 are rejected under 35 U.S.C. 103(a) as being unpatentable over Batelaan et al patent 5,434,208 in view of either Holdcroft et al patent 5,561,030 or Smith et al patent 6,605,236.

Regarding claims 19 and 20, Batelaan et al patent 5,434,208 discloses an optical waveguide or optical switch (column 1, lines 29-32), comprising calix[4]arene (column 3, lines 24-26), and forming of “guest-host systems (hence complexes)-(see column 2, lines 14-16 and column 3, lines 20-26). The calyx[4]arene may be complexed with nitrogen-containing compounds (column 5, lines 15-31).

The claims 19 and 20 differ in requiring the complexing to be with a nitrosonium cation. However, both Holdcroft et al (column 13, lines 30-35 and column 14, lines 63-67) and Smith et al (column 1, lines 33-35 and column 2, lines 40-63) teach combinations/co-polymers/complexes of materials useable for creating optical switches that contain nitrosonium complexes. It would have been obvious to one of ordinary skill in the art at the time of the invention to have utilized a nitrosonium cation as the nitrogen-containing compound being complexed to the calixarene of the Batelaan optical switch, as taught by Holdcroft et al or Smith et al, since nitrosonium has the beneficial properties of imparting controlled conductivity or semiconductivity to the optical switch or similar type articles.

The claimed deriving of NO^+ from an oxide of nitrogen in a form other than nitric oxide have each been given little patentable weight, since no nexus is seen between particular processes that result in the presence of NO^+ and their derivation into a nitrosonium ion and any particular, unique or distinguishable property of the optical switch device claimed.

When the reference teaches a product that appears to be the same as, or an obvious variant of, the product set forth in a product-by-process claim although produced by a different process. See *In re Marosi*, 710 F.2d 799, 218 USPQ 289 (Fed. Cir. 1983) and *In re Thorpe*, 777 F.2d 695, 227 USPQ 964 (Fed. Cir. 1985). See also MPEP § 2113.

When the examiner has found a substantially similar product as in the applied prior art, the burden of proof is shifted to applicant to establish that their product is patentably distinct and not the examiner to show the same process as making. *In re Brown*, 173 USPQ 685 and *In re Fessmann*, 180 USPQ 324.

Applicant's arguments with respect to claims 1-18 have been considered but are moot in view of the new ground(s) of rejection, but will be addressed to the extent they continue to apply. It is argued that Lamartine does not teach or suggest any complexation. However, it is submitted that such complexation is explicitly disclosed at column 5, lines 19-21. Lamartine in combination with Berg now more clearly suggests complexing with oxides of nitrogen of low molecular weight.

Applicant's arguments filed on June 7, 2006 with respect to claims 19 and 20 have been fully considered but they are not persuasive. It is argued that Batelaan does not suggest forming of calixerenes by non-covalent forces. However, it is submitted that such limitation is deemed New Matter and thus not considered on the merits.

It is also argued that Batelaan is "unpredictable" with respect to claims 19 and 20. It is not understood what is meant by such argument.


Any inquiry concerning this communication or earlier communications from the examiner should be directed to Joseph Drodge at telephone number 571-272-1140. The examiner can normally be reached on Monday-Friday from 8:30 AM to 5:00 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Wanda Walker, can be reached at 571-272-1151. The fax phone number for the examining group where this application is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either private PAIR or Public PAIR, and through Private PAIR only for unpublished applications. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have any questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

JWD

August 3, 2006


JOSEPH DRODGE
PRIMARY EXAMINER